Amendments to the Claims

The listing of claims below will replace all prior versions and listings of claims in the application.

1. (Currently Amended) In a local area network having a first hardware node with an IEEE Std 802.3ae™ 10GBASE-X Physical Layer and a second hardware node with the IEEE Std 802.3ae 10GBASE-X Physical Layer, a method for verifying a 10GBASE-X lane routing between the first hardware node and the second hardware node, comprising the steps of:

(1) transmitting a first ordered set from the first hardware node;

(2) receiving a second ordered set at the second hardware node, the second ordered set corresponding to the first ordered set; and

(3) determining if the second ordered set is identical to the first ordered set;

wherein:

the first ordered set complies with IEEE Std 802.3ae specifications for ordered sets; and

the first ordered set is different from ordered sets predefined by the IEEE Std 802.3ae specifications.

2. (Original) The method of claim 1, wherein permutations of code groups within the first ordered set yield different ordered sets, each of the different ordered sets is different from the ordered sets predefined by the IEEE Std 802.3ae specifications.

3. (Original) The method of claim 1, wherein the first ordered set has a different code group in each lane.

4. (Original) The method of claim 1, wherein the first ordered set is preprogrammed within a Physical Coding Sublayer.

5. (Original) The method of claim 1, wherein the first ordered set is capable of being programmed by a user.

6. (Original) The method of claim 1, further comprising the step of:

generating the first ordered set.

7. (Currently Amended) The method of claim 6, wherein the first ordered set is generated when the first hardware node is activated.

8. (Original) The method of claim 6, wherein the first ordered set is generated upon recognizing a link status condition indicative of misrouted IEEE Std 802.3ae 10GBASE-X lanes.

9. (Original) The method of claim 6, wherein the first ordered set is generated upon detecting a link status condition indicative of misrouted IEEE Std 802.3ae 10GBASE-X lanes.

10. (Currently Amended) The method of claim 1, further comprising the step of:

storing the first ordered set in a memory at a Physical Coding Sublayer of the first hardware node.

11. (Original) The method of claim 1, further comprising the step of:

identifying the first ordered set.

12. (Original) The method of claim 1, wherein the first ordered set is transmitted after an A-ordered set.

13. (Currently Amended) The method of claim 1, further comprising the step of:

storing the second ordered set in a memory of the second hardware node.

14. (Currently Amended) The method of claim 1, further comprising the step of:

identifying the second ordered set at the second hardware node.

15. (Original) The method of claim 14, further comprising the step of:

correcting effects of misrouted IEEE Std 802.3ae 10GBASE-X lanes in response to said identified second ordered set.

16. (Original) The method of claim 15, wherein said correcting comprises the steps of:

(a) opening a first switch coupled between a first input port and a first output port; and

(b) closing a second switch coupled between the first input port and a second output port.

17. (Original) The method of claim 16, further comprising the steps of:

(c) opening a third switch coupled between the second input port and the second output port; and

(d) closing a fourth switch coupled between the second input port and the first output port.

18. (Original) A network device for implementing an IEEE Std 802.3ae™ Physical Coding Sublayer, comprising:

a Physical Coding Sublayer service interface;

Encoders coupled to said Physical Coding Sublayer service interface and configured to encode a 10 Gigabit Media Independent Interface character into code groups;

a Physical Medium Attachment service interface coupled to said Encoders;

Decoders coupled between said Physical Coding Sublayer service interface and said Physical Medium Attachment service interface and configured to decode said code groups into said 10 Gigabit Media Independent Interface character;

a first logic circuit coupled between said Physical Coding Sublayer service interface and said Physical Medium Attachment service interface and configured to identify a first ordered set received from a Reconciliation Sublayer;

a first memory coupled to said first logic circuit and configured to store said first ordered set;

a second logic circuit coupled to said first logic circuit and configured to ensure that said first ordered set is transmitted in place of one of a K-ordered set and an R-ordered set during a clock cycle following a transmission of an A-ordered set;

a second memory coupled between said Physical Coding Sublayer service interface and said Physical Medium Attachment service interface and configured to store a second ordered set received from a Physical Medium Attachment sublayer; and

a third logic circuit coupled to said second logic circuit and configured to identify said second ordered set received from said Physical Medium Attachment sublayer;

wherein:

said first ordered set complies with IEEE Std 802.3ae specifications for ordered sets; and

said first ordered set is different from ordered sets predefined by said IEEE Std 802.3ae specifications.

19. (Original) The network device of claim 18, wherein said second ordered set is identical to said first ordered set.

20. (Original) The network device of claim 18, wherein permutations of code groups within said first ordered set yield different ordered sets, each of said different ordered sets being different from said ordered sets predefined by said IEEE Std 802.3ae specifications.

21. (Original) The network device of claim 18, wherein said first ordered set has a different code group in each lane.

22. (Original) The network device of claim 18, wherein an identity of said first ordered set is preprogrammed within said first logic circuit.

23. (Original) The network device of claim 18, wherein an identity of said first ordered set is capable of being programmed by a user.

24. (Original) The network device of claim 18, wherein an identity of said second ordered set is preprogrammed within said third logic circuit.

25. (Original) The network device of claim 18, wherein at least one of said first logic circuit and said third logic circuit is further configured to identify an ordered set from said ordered sets predefined by said IEEE Std 802.3ae specifications.

26. (Original) The network device of claim 18, further comprising a fourth logic circuit coupled to said third logic circuit and configured to correct effects of misrouted IEEE Std 802.3ae 10GBASE-X lanes.

27. (Original) The network device of claim 26, wherein said fourth logic circuit corrects said effects of said misrouted IEEE Std 802.3ae 10GBASE-X lanes in response to said second ordered set stored in said second memory.

28. (Original) The network device of claim 27, wherein said fourth logic circuit comprises a set of switches, each switch in said set of switches configured to route an IEEE Std 802.3ae

10GBASE-X lane of said misrouted IEEE Std 802.3ae 10GBASE-X lanes from an input port to an output port.

29. (Original) The network device of claim 28, wherein said set of switches comprises sixteen switches.

30. (Currently Amended) In a network having a first node that operates according to a protocol in which a character is converted to code groups, each code group of the code groups having a corresponding lane, the code groups communicated across the lanes in a parallel manner, and a second node that operates according to the protocol, a method of verifying a lane routing between the first node and the second node, comprising the steps of:

(1) transmitting a first set of code groups from the first ~~node;~~ node, wherein each code group of the first set of code groups is different from special code groups predefined by the protocol;

(2) receiving a second set of code groups at the second node, the second set of code groups corresponding to the first set of code groups; and

(3) determining if the second set of code groups matches the first set of code groups.

31. (Original) The method of claim 30, wherein the first set of code groups is different from a set of code groups predefined by the protocol.

32. (Original) The method of claim 30, wherein the first set of code groups has a different code group in each lane.

33. (Currently Amended) The method of claim 32, further comprising the step of:

correcting the lane routing between the first hardware node and the second hardware node if the second set of code groups mismatches the first set of code groups.

34. (Currently Amended) The method of claim 30, wherein an identity of the first set of code groups is preprogrammed within the second hardware node.

35. (Currently Amended) In a local area network having a first hardware node with an IEEE Std 802.3ae™ 10GBASE-X Physical Layer and a second hardware node with the IEEE Std 802.3ae 10GBASE-X Physical Layer, a method for verifying a 10GBASE-X lane routing between the first hardware node and the second hardware node, comprising the steps of:

(1) transmitting a Q-ordered set from the first hardware node;

(2) receiving a second ordered set at the second hardware node, the second ordered set corresponding to the Q-ordered set; and

(3) determining if the second ordered set is identical to the Q-ordered set;

wherein:

the Q-ordered set is one of /K28.4/D0.0/D0.0/D1.0/ and /K28.4/D0.0/D0.0/D2.0/; and

the second ordered set is one of /K28.4/D0.0/D0.0/D1.0/, /D1.0/K28.4/D1.0/D0.0/, /D0.0/D1.0/K28.4/D0.0/, /D0.0/D0.0/D1.0/K28.4/, /D1.0/D0.0/D0.0/K28.4/, /K28.4/D1.0/D0.0/D0.0/, /D0.0/K28.4/D1.0/D0.0/, /D0.0/D0.0/K28.4/D1.0/, /K28.4/D0.0/D0.0/D2.0/, /D2.0/K28.4/D0.0/D0.0/,

/D0.0/D2.0/K28.4/D0.0/, /D0.0/D0.0/D2.0/K28.4/, /D2.0/D0.0/D0.0/K28.4/,

/K28.4/D2.0/D0.0/D0.0/, /D0.0/K28.4/D2.0/D0.0/, and /D0.0/D0.0/K28.4/D2.0/.